

### Patent Claims

1. An arrangement to accommodate the power and control electronics of an electric motor (2), comprising
  - a first circuit board (11) mounted with control electronic components (12a-12c)
  - a second circuit board (16) mounted with power electronic components (17) which has a substrate that not only has electrically insulating properties but also good thermal conductivity;
  - a cooling element (3) in thermally conductive contact with the substrate of the second circuit board (16).
2. An arrangement according to claim 1, characterized in that the second circuit board (16) has a three-layer construction with a copper layer, a base layer in contact with the copper layer made of a material that has good electrically insulating properties and good thermal conductivity and a metal layer made of a metal which conducts heat well and is connected to the base layer in a thermally conductive way, and that the metal layer is in thermal conductive contact with the cooling element (3).
3. An arrangement according to claim 2, characterized in that the base layer is made of a ceramic material having high thermal conductivity and good dielectric insulating properties and that the metal layer is made of aluminum or an aluminum alloy.
4. An arrangement according to claim 2 or 3, characterized in that the cooling element has a heat sink which is in extensive surface contact with the metal layer in a thermally conductive way and is made of metal, preferably of aluminum.
5. An arrangement according to one of the claims 1 to 4, characterized in that the first circuit board (11) has a copper layer on a substrate layer made of electrically insulating plastic and is arranged spaced apart from the second circuit board (16).
6. An arrangement according to claim 5, characterized in that the first circuit board (11) is arranged above and essentially parallel to the second circuit board (16).

7. An arrangement according to claim 5 or 6, characterized in that the substrate layer of the first circuit board (11) is covered with copper layers on two sides and that the tracks formed on the lower copper layer (11a) are connected to the power electronic components (17) on the topside (16a) of the second circuit board located opposite.
8. An arrangement according to one of the claims 5 to 7, characterized in that a power electronic housing (17) soldered onto the second circuit board (16) has bent connecting pins (18) which are soldered to the first circuit board (11) mounted with the control components (12a-12c).
9. An arrangement according to one of the claims 4 to 8, characterized in that the first circuit board (11) is supported directly on the heat sink (3) by means of spacers (12).
10. An arrangement according to one of the claims 4 to 8, characterized in that the first circuit board (11) is directly supported on a wall (5) of the heat sink (3), bracing means for the circuit board (11) being provided on the wall (5) of the heat sink (3).
11. An arrangement according to one of the claims 4 to 10, characterized in that the heat sink (3) has an accommodating space (4) for the first (11) and the second circuit board (16) including the components located on them and is connected via a surrounding flange (6) to a counter flange (7) of the motor housing (1).
12. An arrangement according to one of the claims 4 to 11, characterized in that the heat sink (3) has cooling fins (10) and that air can flow through the spaces between the cooling fins (10).
13. An arrangement according to one of the claims 4 to 12, characterized in that the heat sink (3) is made of aluminum or an aluminum alloy.
14. An arrangement according to one of the above claims, characterized by a motor housing (1) connected to the cooling element (3).